

Serial No.: 10/660,471

Confirmation No.: 4947

Applicant: PALMBERG *et al.*

Atty. Ref.: 06730.0056.NPUS00

REQUEST TO WITHDRAW FINALITY:

It is respectfully asserted that the finality of the Action is inappropriate at this juncture in the prosecution, and it is requested that it be withdrawn. MPEP 706.07(a) explains that even though a second action is normally made final there are exceptions. These exceptions include "where the examiner introduces a new ground of rejection that is neither necessitated by applicant's amendment of the claims nor based on information submitted in an information disclosure statement filed during the period set forth in 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p)." In this case, Applicant's amendments did not necessitate the use of Kohata '630 for the first time in the second Action - the subject matter rejected under Kohata '630 has been present in the claims since their original filing. Applicant believes the present Action to be prematurely final and respectfully requests that the final status be withdrawn pursuant to MPEP 706.07(d).¹

REMARKS AND ARGUMENTATION:

Applicants gratefully acknowledge the indication of allowability of claims 7, 8, 18 and 19. New claim 21 generally embodies the limitations of claim 7 and therefore it, and all that depend therefrom are considered allowable.

The balance of the previously presented claims have been rejected under § 102(a) in view of Kohata '630.

Claims 1, 9 and 11 have been amended for focus on the embodiment of the invention generally represented in Figs. 5 and 6. To that end, the claims further recite that the valve includes a peripherally toothed member 305 engaged with a cog wheel 400 that is rotary driven and stationarily located relative to the valve (see Fig. 6 below).

¹ 706.07(d) Final Rejection, Withdrawal of, Premature

If, on request by applicant for reconsideration, the primary examiner finds the final rejection to have been premature, he or she should withdraw the finality of the rejection. The finality of the Office action must be withdrawn while the application is still pending.

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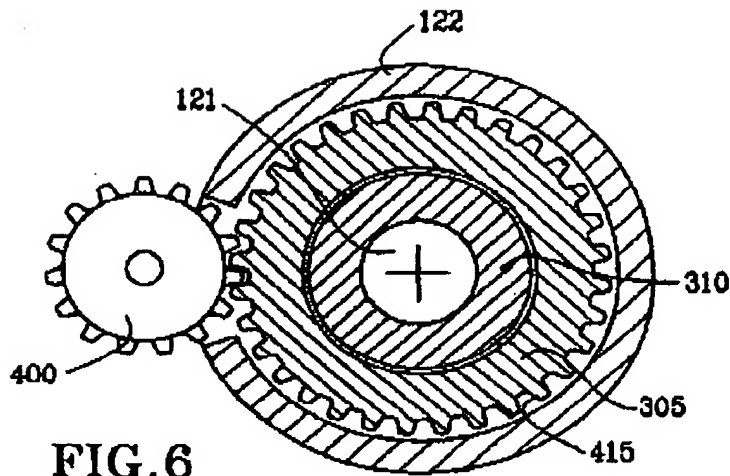


FIG. 6

Kohata '630 discloses a rotary valve V_1 for controlling the steering assist torque provided by a hydraulic motor in a hydraulic steering assistance system of a vehicle. The rotary valve V_1 comprises a cylindrical *inner sleeve* 25 and a cylindrical *outer sleeve* 28.

The inner sleeve 25 is rotatably disposed in a valve housing 1 and connected to the steering wheel 3 for rotation. The inner sleeve 25 is also connected to a torsion bar 26, which in turn is connected to a pinion shaft 23.²

The outer sleeve 28 is rotatably arranged between said inner sleeve 25 and said valve housing 1 and coupled to the pinion shaft 23 through an elastomer 34.³ The position of the outer

² See *Kohata '630* col. 3 lines 29–65: “A cylindrical inner sleeve 25 is rotatably disposed in the valve housing 1 and is connected to the steering wheel 3 for rotation. A torsion bar 26 is coaxially fitted into the inner sleeve 25. The torsion bar 26 is coupled at its upper end to the inner sleeve 25 by a pin 27 and is coupled at its lower end by serrations to an upper end of the pinion shaft 23. Thus, the steering torque of the steering wheel 3 is transmitted from the inner sleeve 25 through the torsion bar 26 to the pinion shaft 23. The torsion bar 26 is torsionally deformed in proportion to the magnitude of the steering torque.”

³ See *Kohata '630* col. 4 lines 12–23: “As can be seen from FIG. 2, together with FIG. 3, the pinion shaft 23 and the outer sleeve 28 are coupled to each other through an elastomer connecting member 34 made of, for example, a rubber, so that they rotate slightly relative to each other. More specifically, the elastomer connecting member 34 is supported on a pin 35 which is embedded in a radial direction in the inner periphery of the outer sleeve 28. The elastomer connecting member 34 is fitted into a notch 232 provided in a portion of a circumference of the pinion shaft 23, whereby the outer sleeve 28 can be rotated through a very small angle (up to about 2.5°) in the leftward or rightward directions relative to the pinion shaft 23.”

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sleeve 28 with respect to the inner sleeve 25 regulates the flow of hydraulic oil as they are rotatably displaced with respect to each other as the driver twists the torsion bar 26 as he turns the steering wheel 3.⁴

A first cog wheel or gear 33 is secured to an output shaft of a torque motor 18 and meshes with a second cog wheel or gear 32 arranged on a connecting member 30 that is rigidly coupled to the outer sleeve 28. Thus, torque from the torque motor 18 is transmitted through the pair of gears 32 and 33 via the connecting member 30 to the outer sleeve 28.⁵

The gear 33 in Kohata '630, however, always rotates together with the outer sleeve 28 as the driver rotates the steering wheel connected to the pinion shaft 23, which in turn is connected to the outer sleeve 28.⁶ A further displacement of the outer sleeve 28 in Kohata '630 is consequently accomplished by *increasing* or *decreasing* the rotation speed or similar of the gear 33.

⁴ See Kohata '630 col. 3 lines 41-55: "A cylindrical outer sleeve 28 is rotatably received between an outer periphery of a lower portion of the inner sleeve 25 and a valve bore 11 provided in an inner periphery of the valve housing 1. A plurality of elongated grooves 28₁ are axially provided in an inner periphery of the outer sleeve 28, and a plurality of elongated grooves 25₁ are provided in an outer periphery of the inner sleeve, so that they are opposed to and correspond to the elongated grooves 28₁. The elongated grooves 25₁ in the inner sleeve 25 are capable of being selectively put into communication with the feed port 6 or the return port 7 through an oil passage 25₂ defined within the inner sleeve 25, and the elongated grooves 28₁ in the outer sleeve 28 are capable of being selectively put into communication with the first output port 8 or the second output port 9 through oil passages 28₂ or 28₃ defined in the outer sleeve 28."

⁵ See Kohata '630 col. 3 line 66 to col. 4 line 30: "A cylindrical connecting member 30 is rigidly coupled to an upper end of the outer sleeve 28 such that the outer sleeve 28 and connecting member 30 rotate together. The cylindrical connecting member 30 is rotatably fitted over the outer periphery of an intermediate portion of the inner sleeve 25, and supported on its outer periphery by an inner periphery of the valve housing 1 through a roller bearing 31. A bevel gear 33 is secured to an output shaft of the torque motor 18 and meshes with a bevel gear 32 which is fixedly press-fitted into an upper portion of the connecting member 30. Thus, torque from the torque motor 18 is transmitted through the pair of the bevel gears 32 and 33 via the connecting member 30 to the outer sleeve 28.
[...]"

Thus, when a voltage is applied to the torque motor 18, causing the motor to produce a predetermined torque, the outer sleeve 28 is rotated through a very small angle relatively to the pinion shaft 23 by deformation of the elastomer connecting member 34, thereby operating the rotary valve V1."

⁶ See Kohata '630 col. 4 lines 56-63: "However, the torque motor which is not energized, can be freely rotated with no load and hence, the pinion shaft 23 and the outer sleeve 28 are rotated together in such a manner that there is little deformation of the elastomer connecting member 34. As a result, a difference in phase corresponding to the torsional deformation of the torsion bar 26 is produced between the inner and outer sleeves 25 and 28."

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This is a clear difference compared to the presently claimed invention in which the cog wheel 400 is only actuated a certain angle corresponding to the desired further displacement angle α_{off} of the first cylindrical valve member 305. The cog wheel 400 is not rotated any further and it is certainly not rotated *together* with the first valve member 305 as this valve member 305 is rotated when the driver turns the steering wheel. This follows from the fact that the electric stepping motor 410, which rotates the cog wheel 400 of the present invention, is attached to the pinion shaft 122 for rotating together with the shaft 122, whereas the gear 33 in Kohata '630 is a part of a torque motor 18 that is fixedly attached to the valve housing.⁷ Support for the added recitations in the claims can be found in the description at paragraph 0052⁸, and with reference to Figs. 5-6.

CONCLUSION

Applicants have made an earnest attempt to respond to all the points included in the Office Action and, in view of the above, submit that requirements for an anticipating reference, under 35 USC §102, have not been met by Duffy. Amendment of claims places the application in condition for allowance. Consequently, request is respectfully made for reconsideration of the application and notification of allowance of pending claims 1 - 20 in the next paper from the Office.

⁷ See section [0052] in the present patent application: "In a second embodiment of the present invention the rotary valve 300 as illustrated in fig. 2, 3 and 4 may be adapted to have the first cylindrical valve member 305 rotated an offset angle α_{off} by a cog wheel or a similar toothed device. This may be accomplished by the arrangement illustrated in fig. 5 showing a cog wheel 400 operatively connected to a cog wheel shaft 405 that is operatively connected to an electric stepping motor 410 or a piezoelectric or magnetostrictive motor or similar, where the electric motor 410 in turn is attached to the pinion shaft 122 for rotating together with the shaft 122."

⁸ See section [0052] in the present patent application: "In a second embodiment of the present invention the rotary valve 300 as illustrated in fig. 2, 3 and 4 may be adapted to have the first cylindrical valve member 305 rotated an offset angle α_{off} by a cog wheel or a similar toothed device. This may be accomplished by the arrangement illustrated in fig. 5 showing a cog wheel 400 operatively connected to a cog wheel shaft 405 that is operatively connected to an electric stepping motor 410 or a piezoelectric or magnetostrictive motor or similar, where the electric motor 410 in turn is attached to the pinion shaft 122 for rotating together with the shaft 122."

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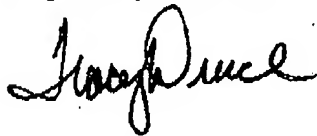
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The undersigned representative requests any extension of time that may be deemed necessary to further the prosecution of this application.

The undersigned representative authorizes the Commissioner to charge any additional fees under 37 C.F.R. 1.16 or 1.17 that may be required, or credit any overpayment, to Deposit Account No. 14-1437, Order No. 06730.0056.NPUS00.

In order to facilitate the resolution of any issues or questions presented by this paper, the Examiner should directly contact the undersigned by phone to further the discussion.

Respectfully submitted,



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